Claims

We claim:

1. A demultiplexor, comprising

a first section capable of receiving a WDM beam,

a diffraction grating formed connected with the first section, the WDM beam being directed onto the internal surface of the diffraction grating, the diffraction grating providing angularly separated beams on the external surface of the diffraction grating;

a second section connected to the first section; and

a third section connected the second section, the third section positioned relative to the first section to receive spatially separated light beams of a selected diffraction order from the diffraction grating.

2. The demultiplexor of Claim 1, wherein further including a reflective surface integrally formed on the first section that directs the WDM beam received into the first section onto a bottom surface of the diffraction grating.

3. The demultiplexor of Claim 2, wherein the reflective surface is coated external to the first section with thin film to enhance internal reflection of the WDM beam.

4. The demultiplexor of Claim 2, wherein the reflective surface is coated with a reflective film.

5. The demultiplexor of Claim 4, wherein the reflective film is a gold film.

6. The demultiplexor of Claim 4, wherein the reflective film is a silver film.

7. The demultiplexer of Claim 1, wherein the first section includes an integrally formed collimating lens, the integrally formed collimating lens collimating the WDM beam received from an optical fiber.

8. The demultiplexer of Claim 7, further including a barrel integrally formed with the first section, the barrel capable of receiving an optical fiber and aligning the optical fiber with the collimating lens.

9. The demultiplexer of Claim 7, further including a post integrally formed with the first section, the post capable of receiving a barrel, the barrel capable of receiving an optical fiber and aligning the optical fiber with the collimating lens.

10. The demultiplexer of Claim 8, wherein the barrel includes a fiber access and a fiber stop.

11. The demultiplexer of Claim 9, wherein the barrel includes a fiber access and a fiber stop.

12. The demultiplexer of Claim 1, wherein the third section includes a focusing lens.

13. The demultiplexer of Claim 12, wherein the third section further includes a support around the focusing lens.

14. The demultiplexer of Claim 13, wherein a detector array can be mounted on the support so that the spatially separated beams are directed onto individual detectors of the detector array.

15. The demultiplexer of Claim 13, wherein an optical fibers are arranged to receive individual ones of the spatially separated beams.

16. The demultiplexer of Claim 1, wherein the first section, the diffraction grating, the second section, and the third section are integrally formed.

17. A method of forming a demultiplexer module, comprising:

injection molding a part having a first section, a second section, and a third section,

wherein a diffraction grating is formed in the first section, the module is formed so that the third section is positioned to receive light from the diffraction grating, and the second section is formed to support the third section relative to the first section.

18. The method of Claim 17, wherein injection molding includes forming a collimating lens in the first section.

19. The method of Claim 17, wherein injection molding includes forming a reflective surface in the first section.

20. The method of Claim 17, wherein injection molding includes forming a focusing lens in the third section.

21. The method of Claim 20, wherein injection molding includes forming a support around the focusing lens in the third section.

22. The method of Claim 19, further including providing a coating to an outside surface of the first section opposite the reflective surface.

23. A demultiplexer, comprising:

means for separating an input light beam into constituant parts;

means for detecting the constituant parts;

means for aligning the means for separating with the means for detecting.